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Using Exploratory Factor Analysis to Explore Personal Attitudes Influencing the People-Plant Relationships in Danish Workplaces



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Main findings

The results indicate that personal attitude towards ornamental plants are related to the perceived benefits of having ornamental plants in office work environments

Based on the answers of 37 Danish employees on 13 items regarding their attitudes towards ornamental plants in office workplaces an exploratory factor analysis (EFA) revealed that the items could be summarized in two factors (figure 1 and 2). Factor 1 concerned whether ornamental plants were wanted in the workplace or not whereas factor 2 concerned perceived benefits of having ornamental plants in the workplace in relation to the employees' general well-being (figure 2).

In conclusion the results presented here form an interesting platform from which the question of how personal attitudes are affecting people-plants relationships in Danish office workplaces can be investigated. Therefore we are planning to conduct further studies.

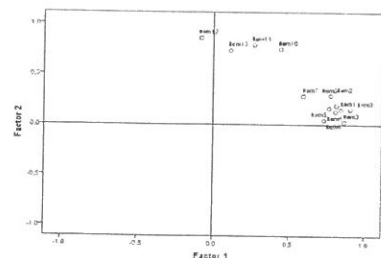


Figure 1: Component plot in rotated space of the scale measuring attitudes towards ornamental plants at the workplace. Factor 1: wanting plants. Factor 2: perceived benefits of having plants.

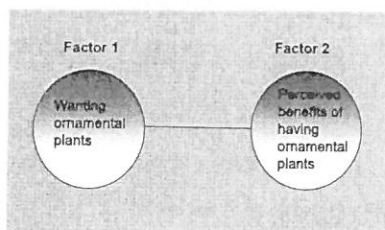


Figure 2: Constructs measured by the two factors extracted by the EFA

Material and methods

The material upon which the EFA was performed was collected with a questionnaire developed in relation to a larger qualitative case-study exploring people-plant relationships at Danish office workplaces (Thomsen and Müller, in press). Apart from demographical questions the questionnaire contained a scale composed of 13 items regarding attitudes and views of ornamental plants at the workplace (figure 3).

Item	Content of the items included in the scale
Item 1:	Ornamental plants present at the workplace make the employee relaxed.
Item 2:	Ornamental plants present at the workplace make the employee feel better physically.
Item 3:	Being surrounded by plants while working makes the employee more productive.
Item 4:	Being surrounded by ornamental plants while working makes the employee more creative.
Item 5:	Being surrounded by ornamental plants while working makes the employee in better mood.
Item 6:	Being surrounded by ornamental plant makes the employee concentrate better.
Item 7:	The employee considers ornamental plants in the workplace as decorative.
Item 8:	Ornamental plants present at the workplace create a better atmosphere between the employee and the co-workers.
Item 9:	Ornamental plants present at the workplace create a better atmosphere between the employee and the clients.
Item 10:	The employee thinks that ornamental plants belong in the workplace.
Item 11:	The employee wants to take care of the ornamental plants present at the workplace.
Item 12:	The employee thinks that there should be more ornamental plants present at the workplace.
Item 13:	The employee is interested in ornamental plants.

Figure 3: Items Included in the scale. The items are constructed on the basis of expert analysis of subject field combined with a review of existing literature about people-plant relationships in offices.

The items were formulated as statements to which the respondents had to state to which extent they agreed. The possible answers were built around a 5-point Likert scale ranged from "not at all" to "a very high extent" (figure 4).

To which extent do you agree in the following statements:

1. I feel more relaxed, if I am surrounded by ornamental plants when I work

To a very high extent To a great extent To some extent To a very small extent Non at all

☐ ☐ ☐ ☐ ☐

2. I feel more comfortable physically, if I am surrounded by ornamental plants when I work

To a very high extent To a great extent To some extent To a very small extent Non at all

☐ ☐ ☐ ☐ ☐

Figure 4: Examples of how items were formulated in the questionnaire.

The EFA was conducted using the statistical software: SPSS version 18. The EFA was performed using principle component analysis (PCA), Kaiser criterion and the orthogonal rotation technique: varimax. The labelling of the extracted factors was based on our fundamental understanding of the topic covered by the items (figure 2). Also, Cornbach's Alpha coefficients were calculated in order to investigate the reliability of the factors extracted.

Results

Two factors were found: one consisted of item 10, 11, 12 and 13 and labelled "wanting plants"; the other factor consisted of factor 1, 2, 3, 4, 5, 6, 7, 8 and 9 and labelled perceived benefits of having plants (figure 1 and 2). The Cornbach's alpha coefficients were 0.79 for factor 1 and 0.93 for factor 2.

References

Thomsen, J. D., and Müller, R. (In press): Plants for a better life - people-plant relationships in indoor work environments. *Acta Horticulturae*